Marine Life Protection Act Initiative

SAT Habitat Evaluations of NCCRSG Proposals
North Central Coast Study Region

Presentation to the MLPA Blue Ribbon Task Force

April 22, 2008 • San Rafael, CA

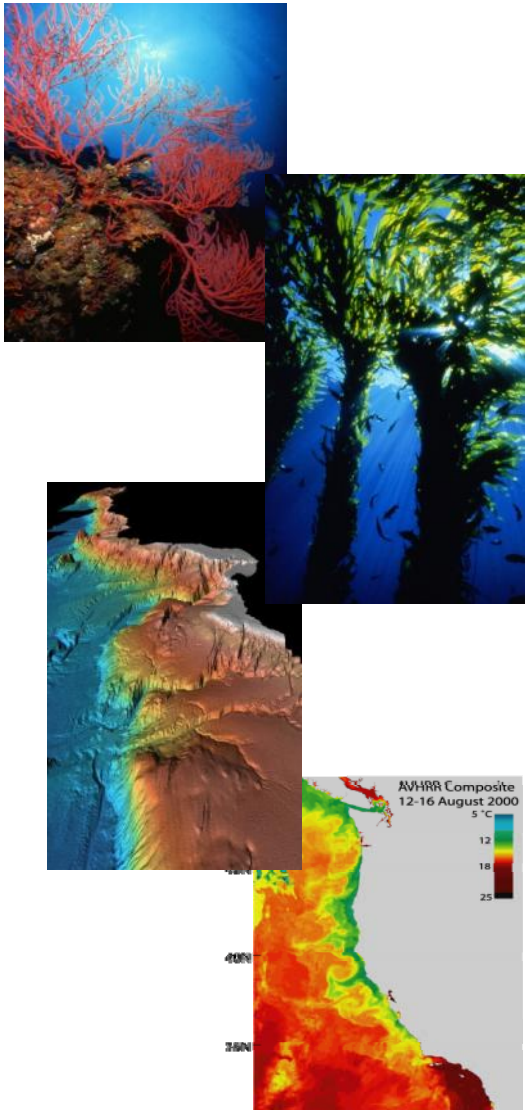
Presented by Dr. Mark Carr

Master Plan Science Advisory Team

- MLPA goals and applicable guidelines
- Habitat representation
- Habitat replication

MLPA Goals

1. To protect the natural diversity and function of **marine ecosystems**.
2. To help sustain and restore **marine life populations**.
3. To improve **recreational, educational, and study opportunities** in areas with minimal human disturbance.
4. To protect representative and unique **marine life habitats**.
5. Clear objectives, effective management, adequate enforcement, sound science.
6. To ensure that MPAs are designed and managed as **a network**.



MLPA Goals: Habitat Representation

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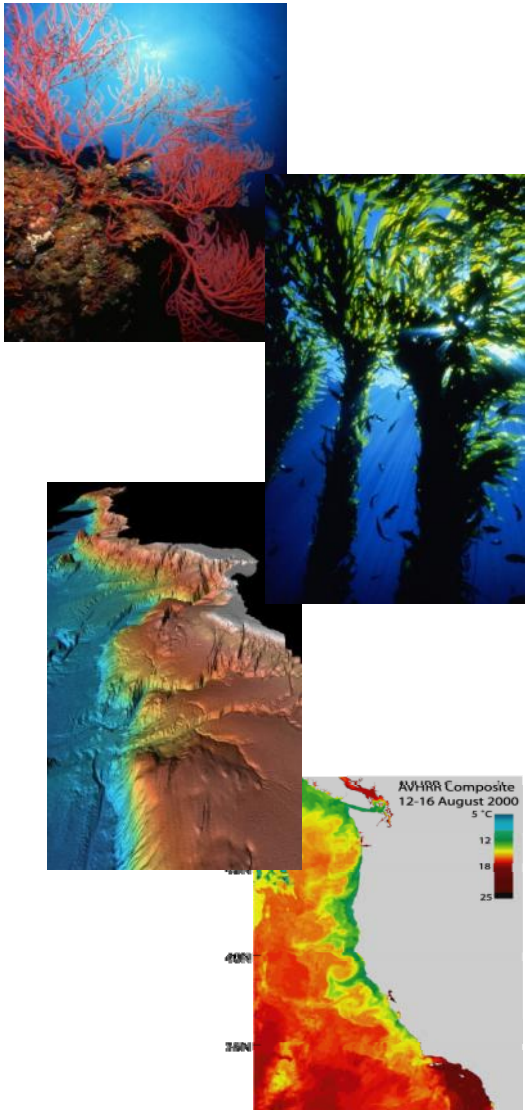


Evaluation: Habitat Representation

Key Questions for Each Proposed Package

1. How well are key habitat types represented in proposed MPA packages?

2. What are the proposed levels of protection for these habitat types?

3. How well are habitats and levels of protection distributed across the study region?

SAT Guidelines: Levels of Protection

	Level of Protection	MPA Types	Activities associated with this protection level
	Very high	**SMR**	**No take**
	High	**SMCA**	**In water depth > 50m: pelagic finfish** (H&L) **salmon by troll only**, **coastal pelagic finfish** (pelagic seine)
	Mod-high	**SMCA**	**Dungeness crab** (traps/pots); **squid** (pelagic seine); **In water depth <50m: pelagic finfish** (H&L) **salmon by troll only**, **coastal pelagic finfish** (pelagic seine);
	Moderate	**SMCA SMP**	**salmon** (non-troll H&L); **abalone** (diving); **halibut, white seabass, striped bass, shore-based finfish, croaker, and flatfishes** (H&L); **smelt** (H&L and hand/dip nets); **clams** (hand harvest); **giant kelp** (hand harvest)
	Mod-low	**SMCA SMP**	**Urchin** (diving); **lingcod, cabezon, greenling, rockfish, and other reef fish** (H&L); **surfperches** (H&L)
	Low	**SMCA SMP**	**bull kelp and mussels** (any method); **all trawling**; **giant kelp** (mechanical harvest); **mariculture** (existing methods in NCCSR)

Results: Habitat Availability

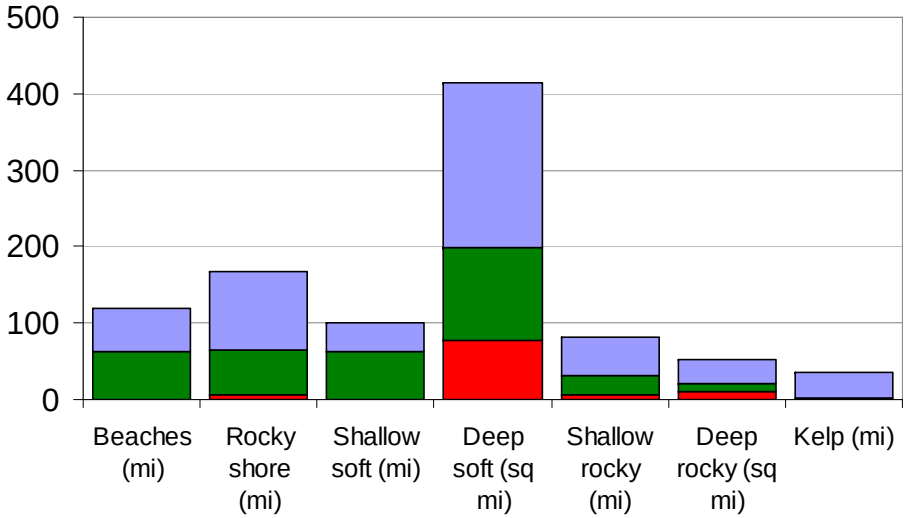
Deep soft bottom is the most abundant habitat in all subregions

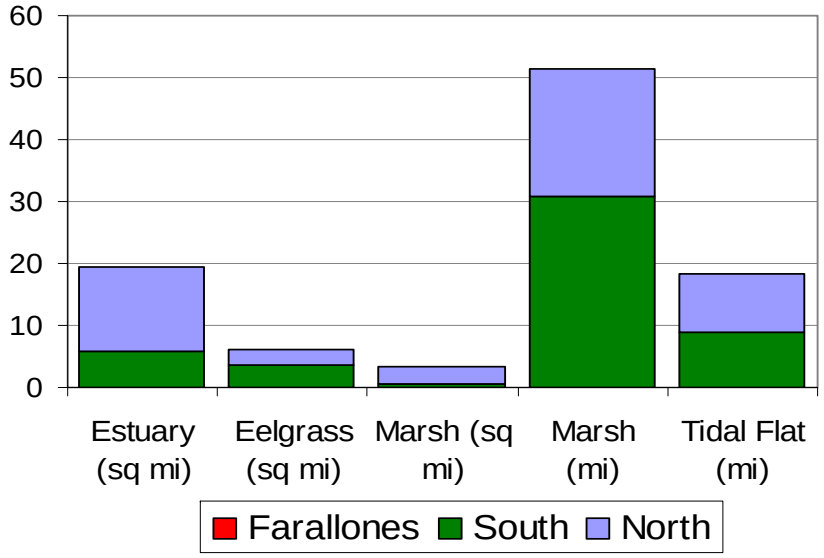
More rocky shore and shallow rocky reef in the north subregion

More shallow soft bottom in the south subregion

Kelp is only mapped in the north subregion

More estuarine area in the north, but more eelgrass in the south

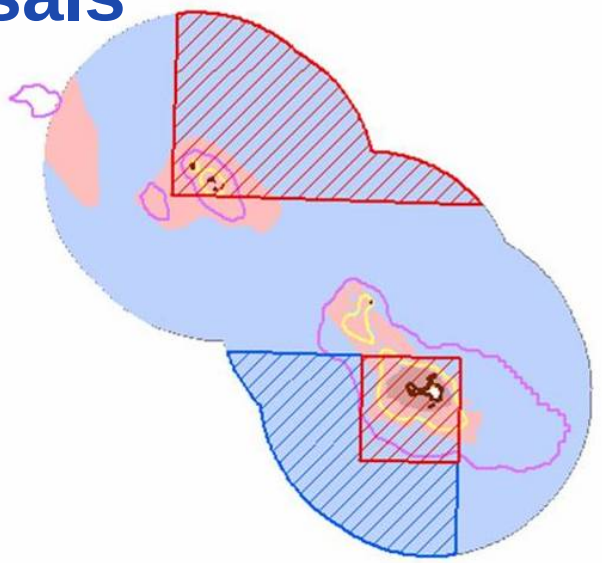


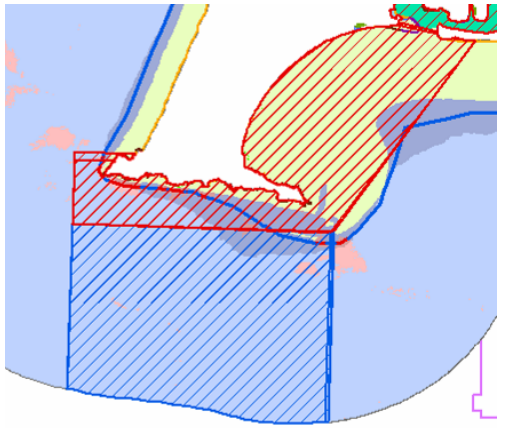


Results: Habitat Representation

Similarities between proposals

- Strong convergence among 3 remaining proposals in area in very high (SMR) protection
- All 3 proposals have extremely similar MPA design at the Farallon Islands, Pt. Reyes, and Pt. Arena
- All 3 proposals have similar area of rocky shore, sandy beach and surfgrass in very high (SMR) protection
- All 3 proposals have similar protection of estuarine habitats



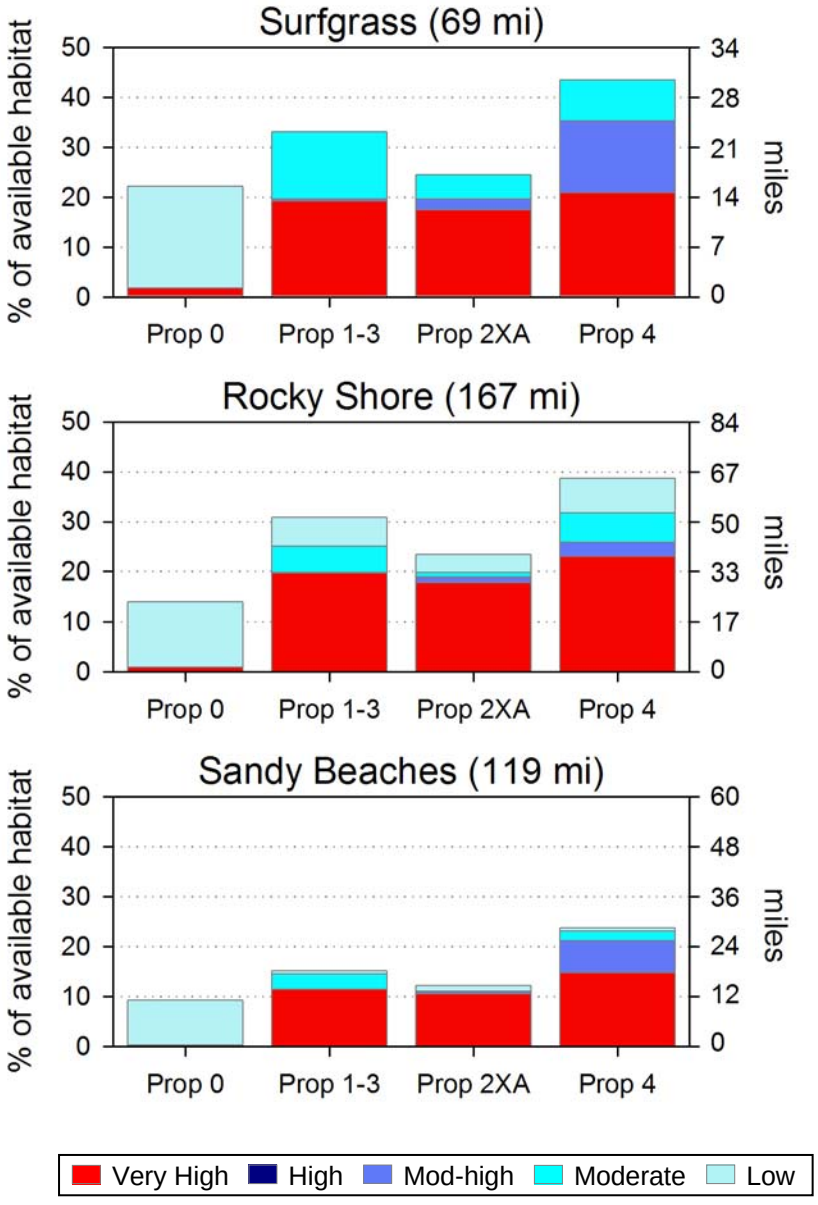


Results: Habitat Representation

Shoreline Habitats

All proposals have roughly 20% of surfgrass and rocky shore at very high protection. Additional areas allow some salmon and crab, shorefishing, abalone, halibut and urchin take.

Protection of sandy beach is still generally lower than protection of rocky shoreline



Results: Habitat Representation

Rock Habitats

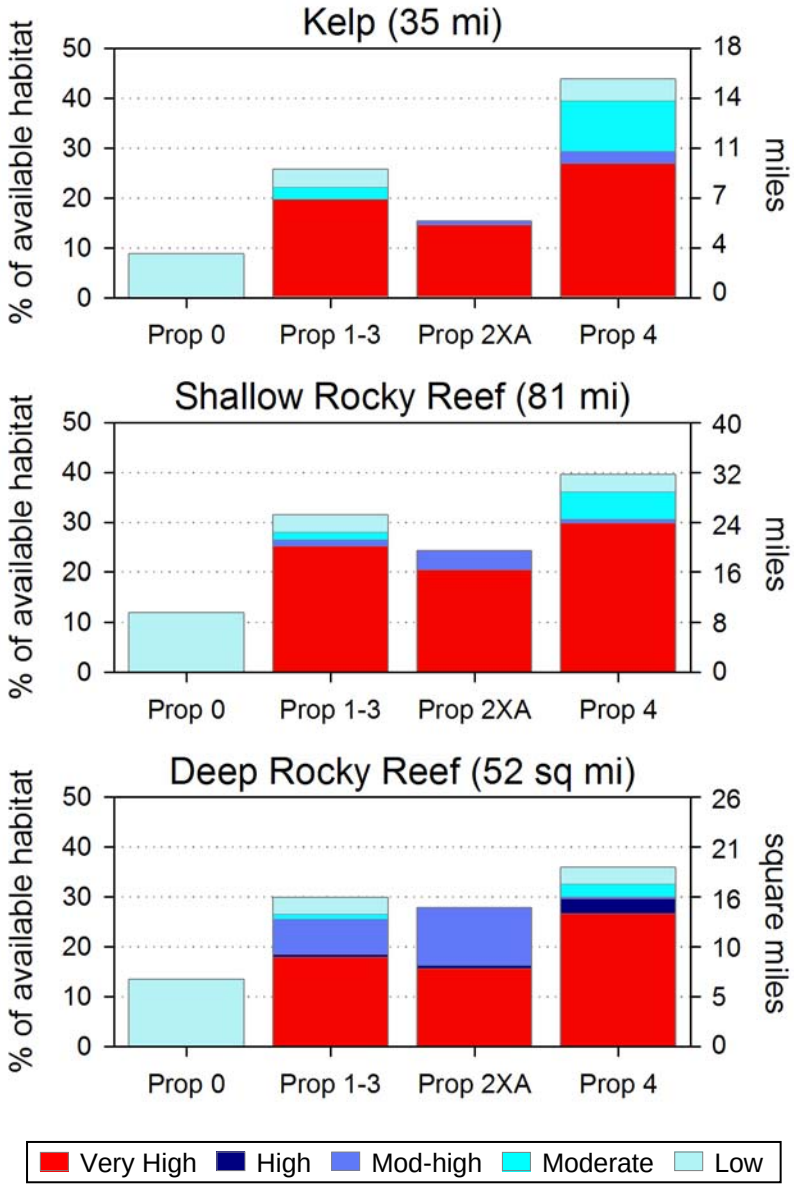
A high proportion of protected areas are in very high protection SMRs

Protection of kelp closely mirrors protection of shallow rock

Prop 4 protects the greatest proportion of all three rocky habitats at very high protection

Large areas of deep rock in mod-high protection due to salmon and crabbing

Some shallow rock and kelp areas in moderate due to shorefishing and abalone and low due to urchin harvest



Results: Habitat Representation

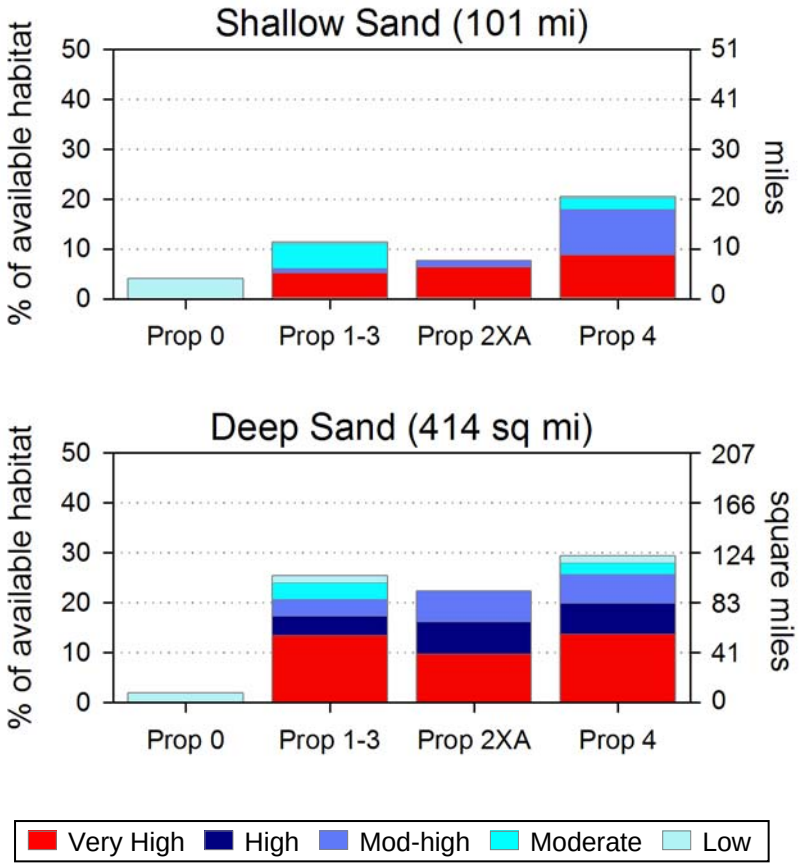
Soft Bottom Habitats

Lower representation of soft bottom habitats relative to rocky habitats

Area of shallow sand in very high protection similar across proposals

Area of deep sand in very high, high and moderate-high protection similar across proposals

Large areas of deep sand in high protection due to deep water salmon trolling and mod-high protection due to crabbing

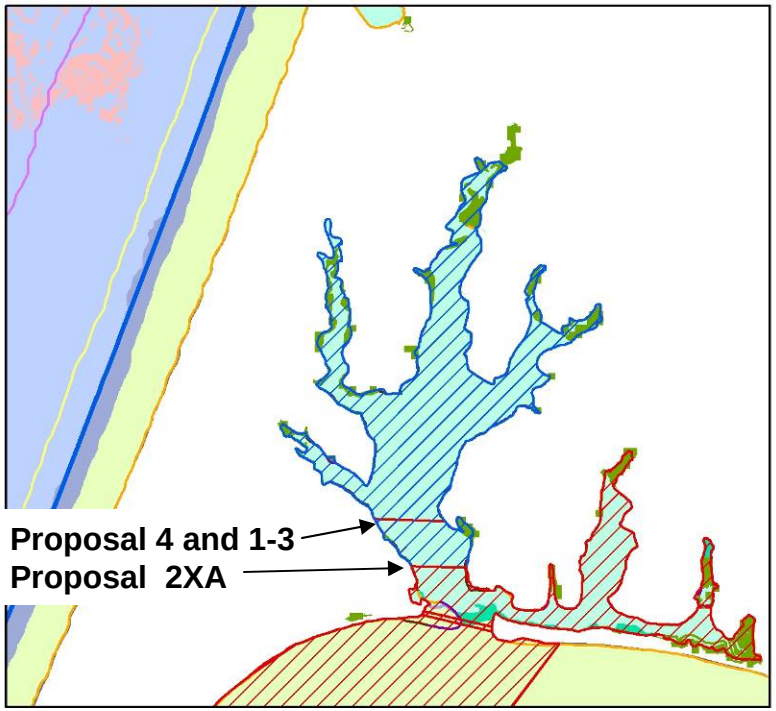


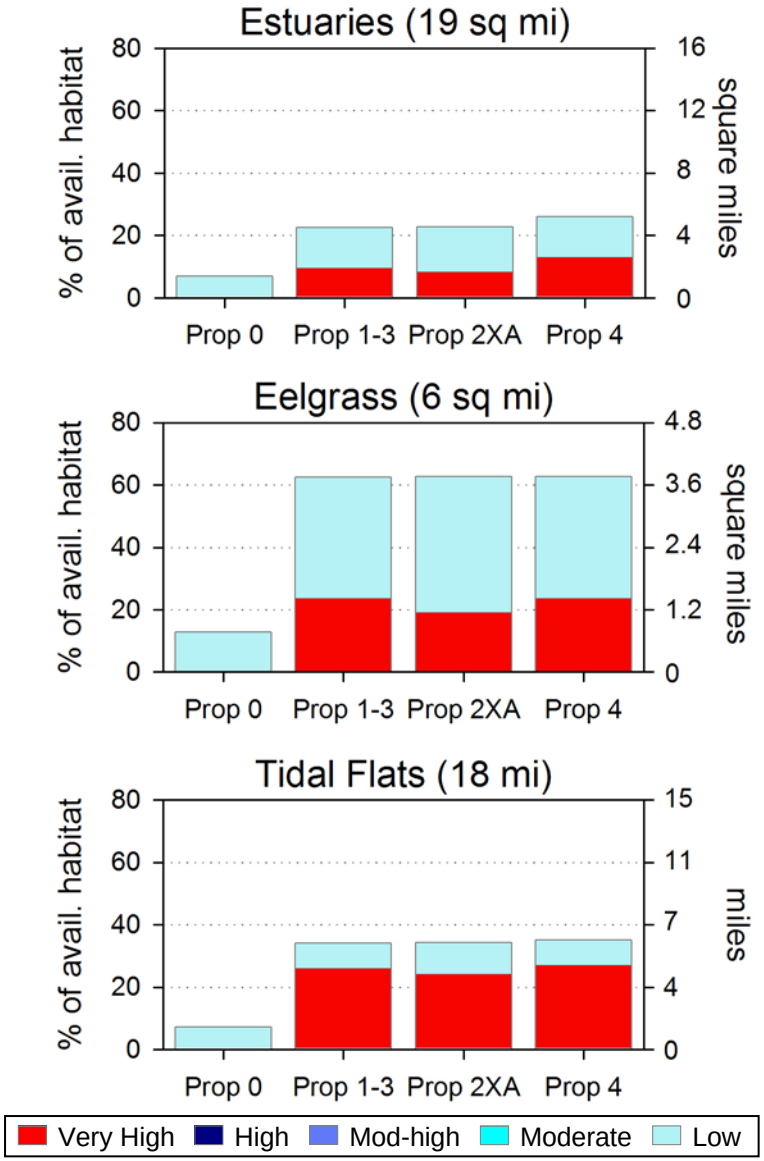
Results: Habitat Representation

Estuarine Habitats

Lower proportions of estuarine habitats in very high SMRs compared to previous version because forecasted mariculture not counted toward very high protection

Low ☐ protection due to aquaculture





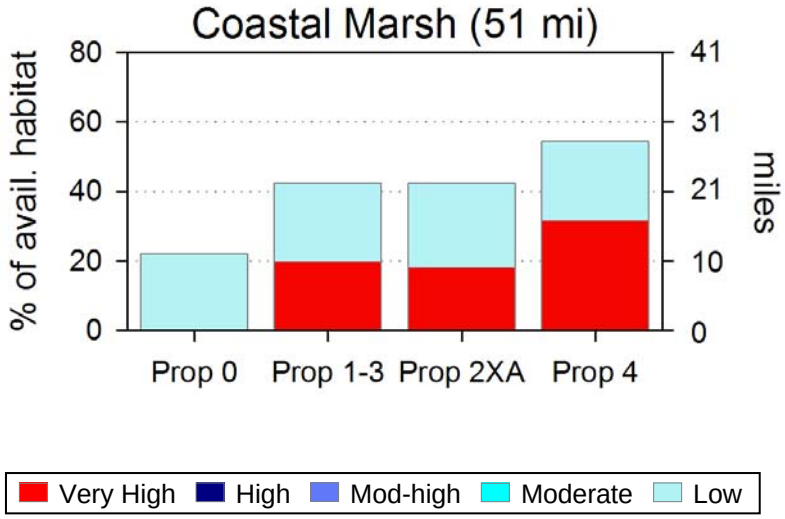
Results: Habitat Representation

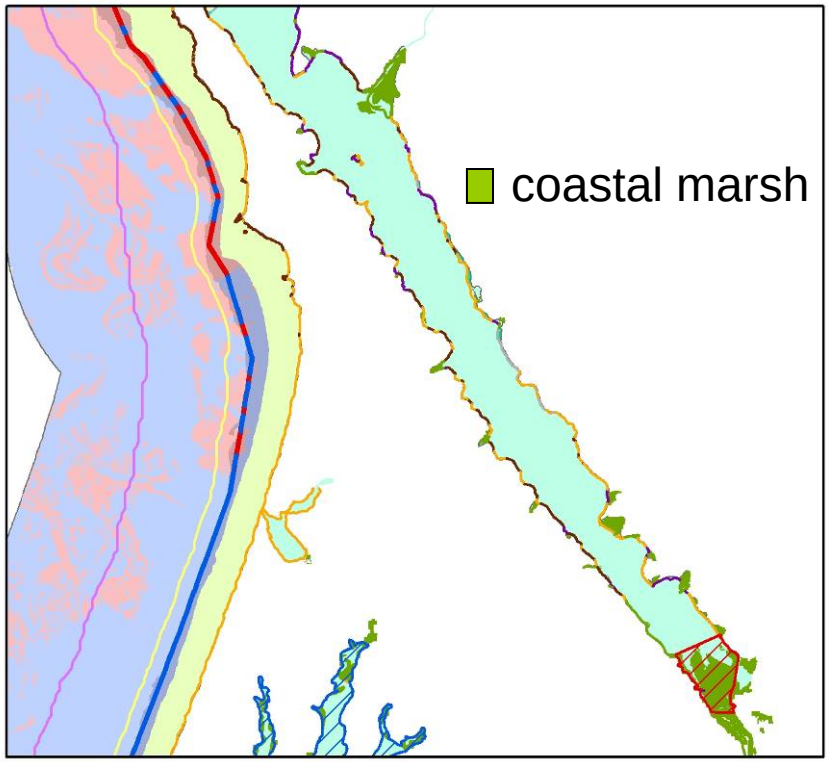
Estuarine Habitats

Only Proposal 4 has an MPA in Tomales Bay

Effects coastal marsh representation

Low ☐ protection due to aquaculture





Results: Habitat Representation

Summary

- Strong convergence among 3 remaining proposals as compared to previous round
- All habitats except shallow sand have at least 10% representation in all three proposals at very high, high, and mod-high protection
- Consistent ranking in percent of habitat protected (4 > 1-3 > 2XA), with exception of shallow sand at very high and high protection
- Range of variation in representation:

  At very high protection, representation varied by 3.5% (surfgrass) to 12% (kelp) across proposals

  At high protection, representation varied by 3.5% (surfgrass) to 13% (deep rock) across proposals

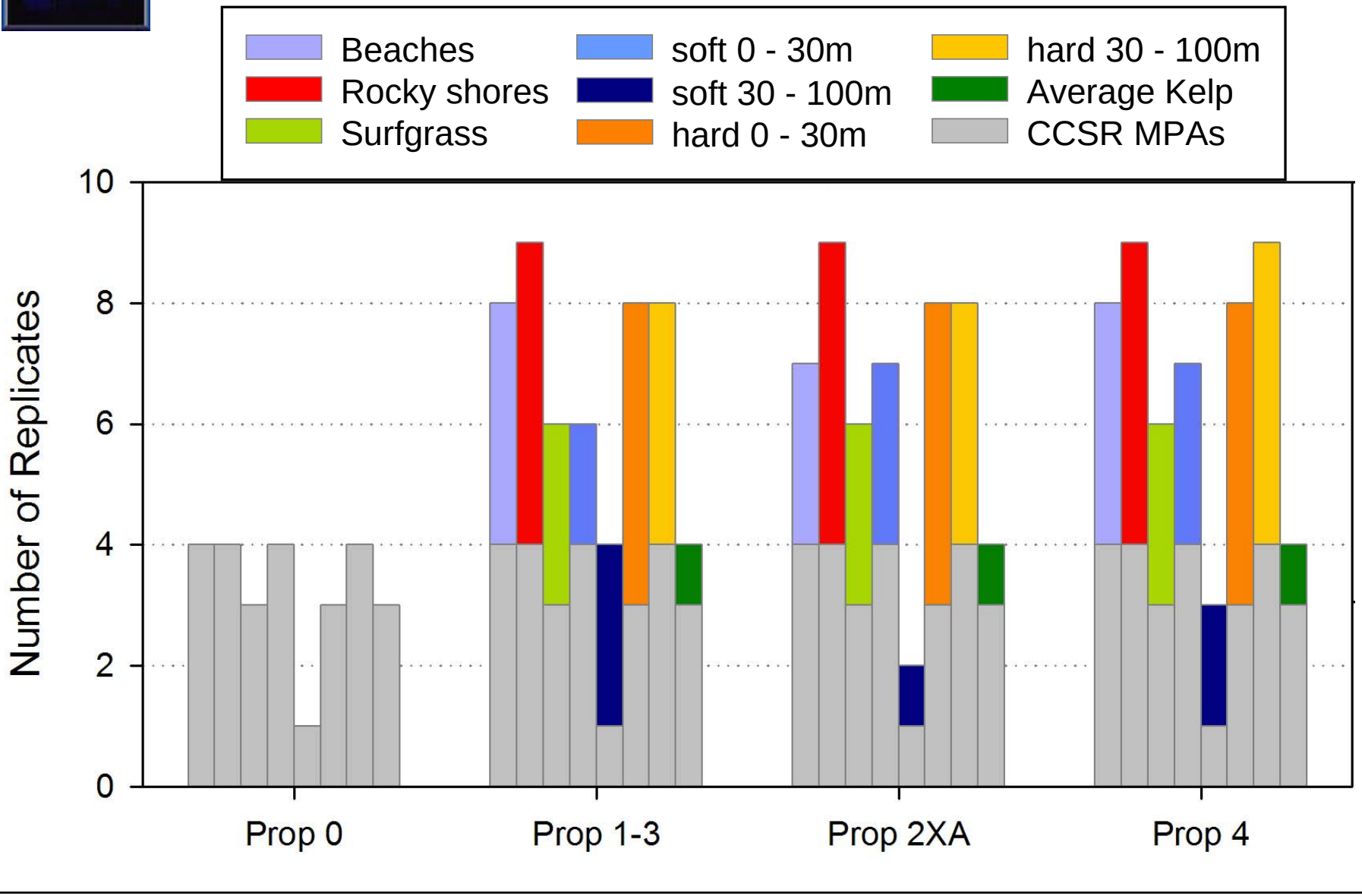
  At mod-high protection, representation varied by 4.5% (deep rock) to 16% (surfgrass)

Methods: Habitat Replication

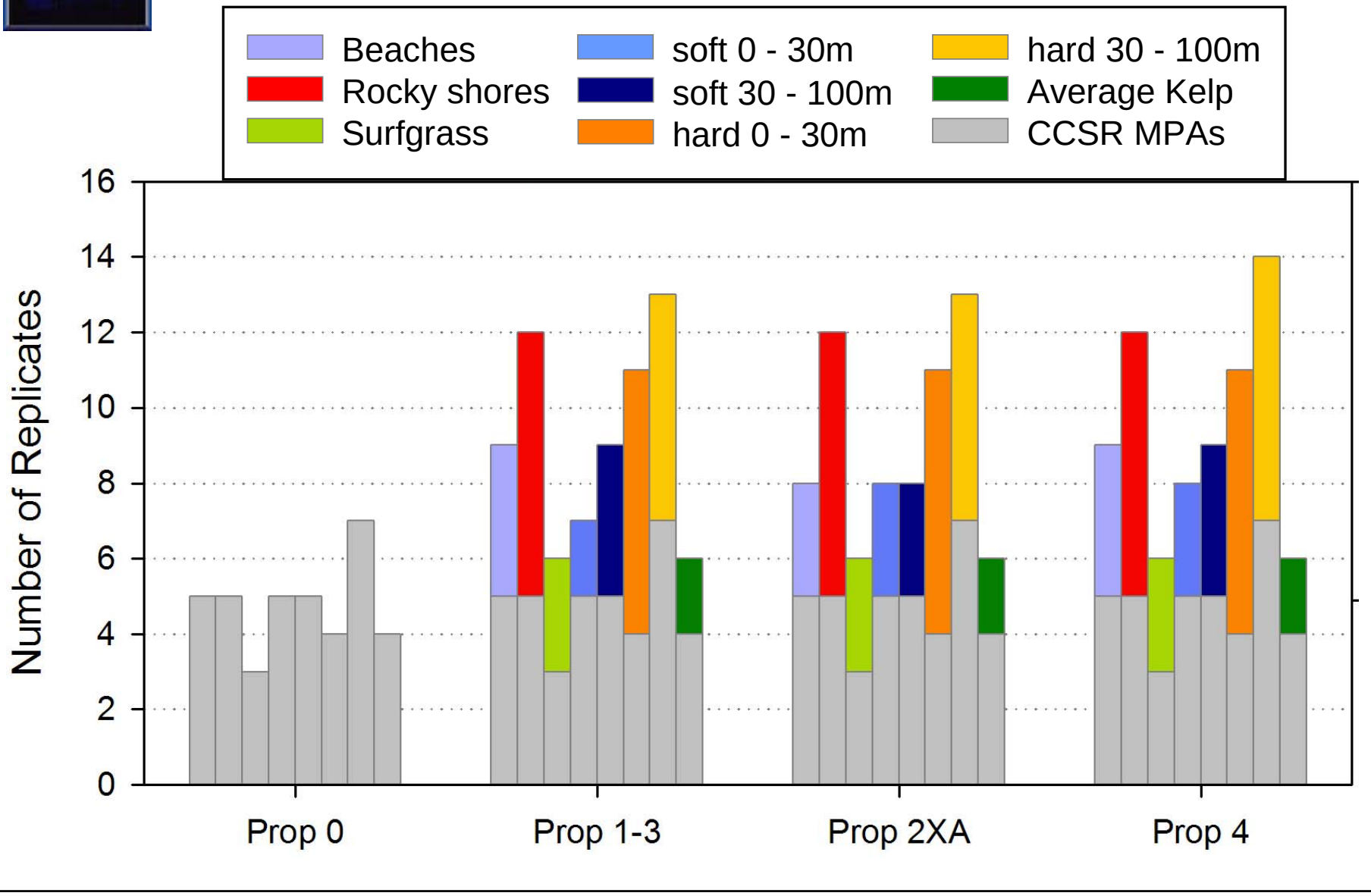
Guidelines for replication:

- 3-5 replicates of habitat per biogeographic region
- MPA or cluster must meet the minimum size guidelines (9 square miles)
- Habitat must meet the threshold identified to encompass 90% of biodiversity in that habitat type
- Estuarine MPAs do not have to meet size guidelines but must contain at least 0.12 mi^2 of estuarine habitat
- Some small estuaries (Gualala and Garcia rivers, Pescadero Creek) contain less than the minimum 0.12 mi^2, but protection of these habitats still has conservation value

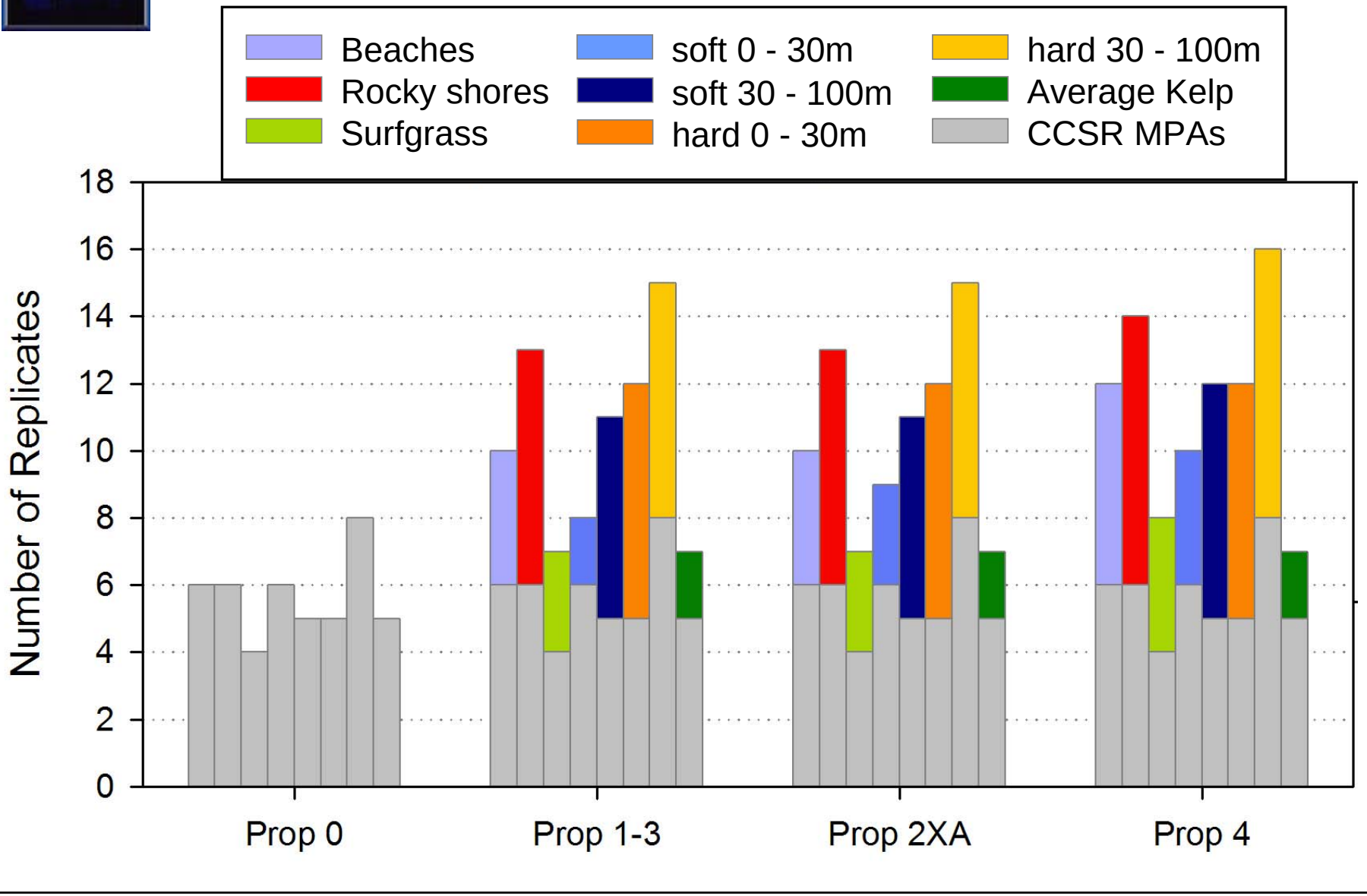
Replication: Very High Protection



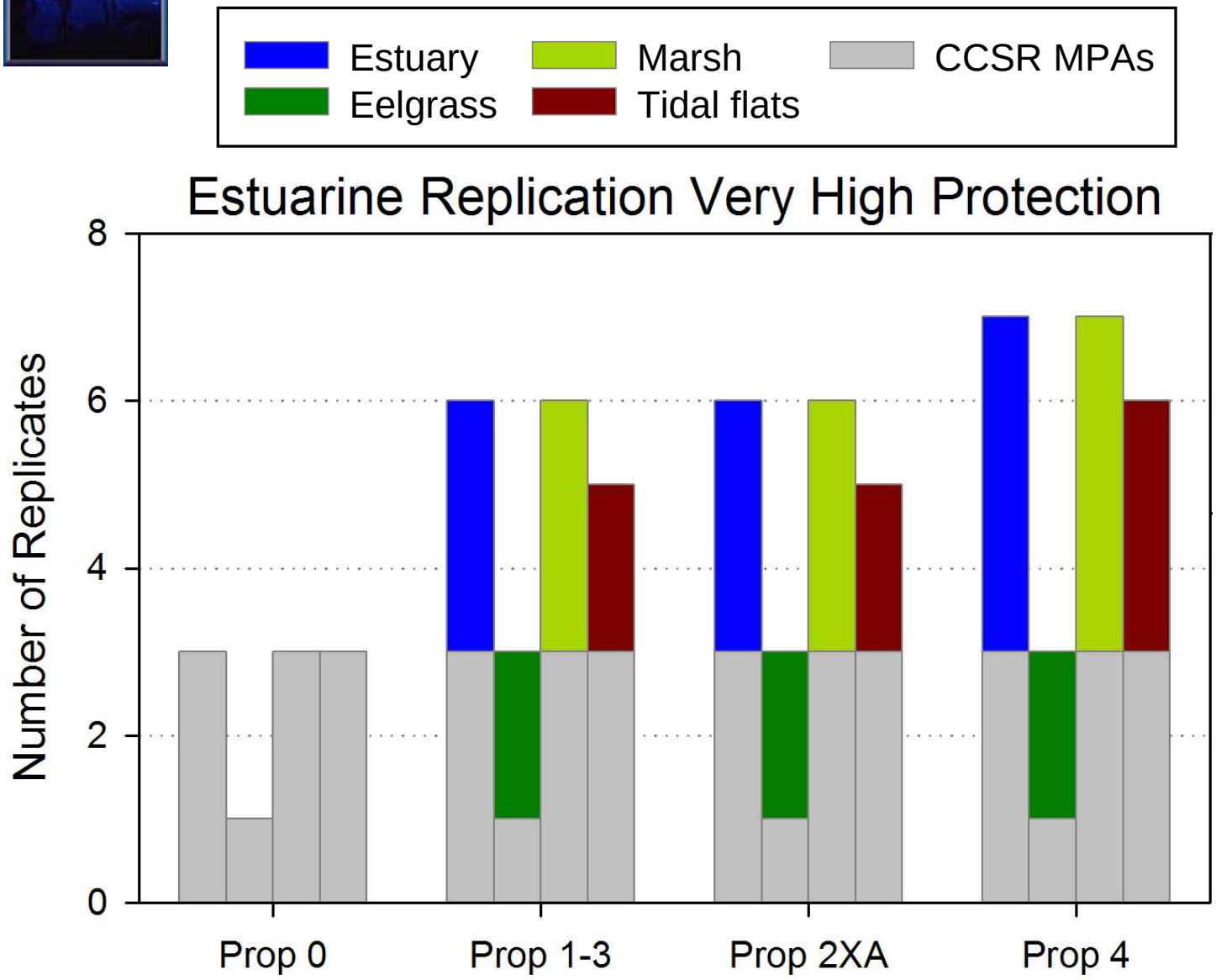
Replication: High Protection



Replication: Mod-high Protection



Replication: Estuarine Habitats

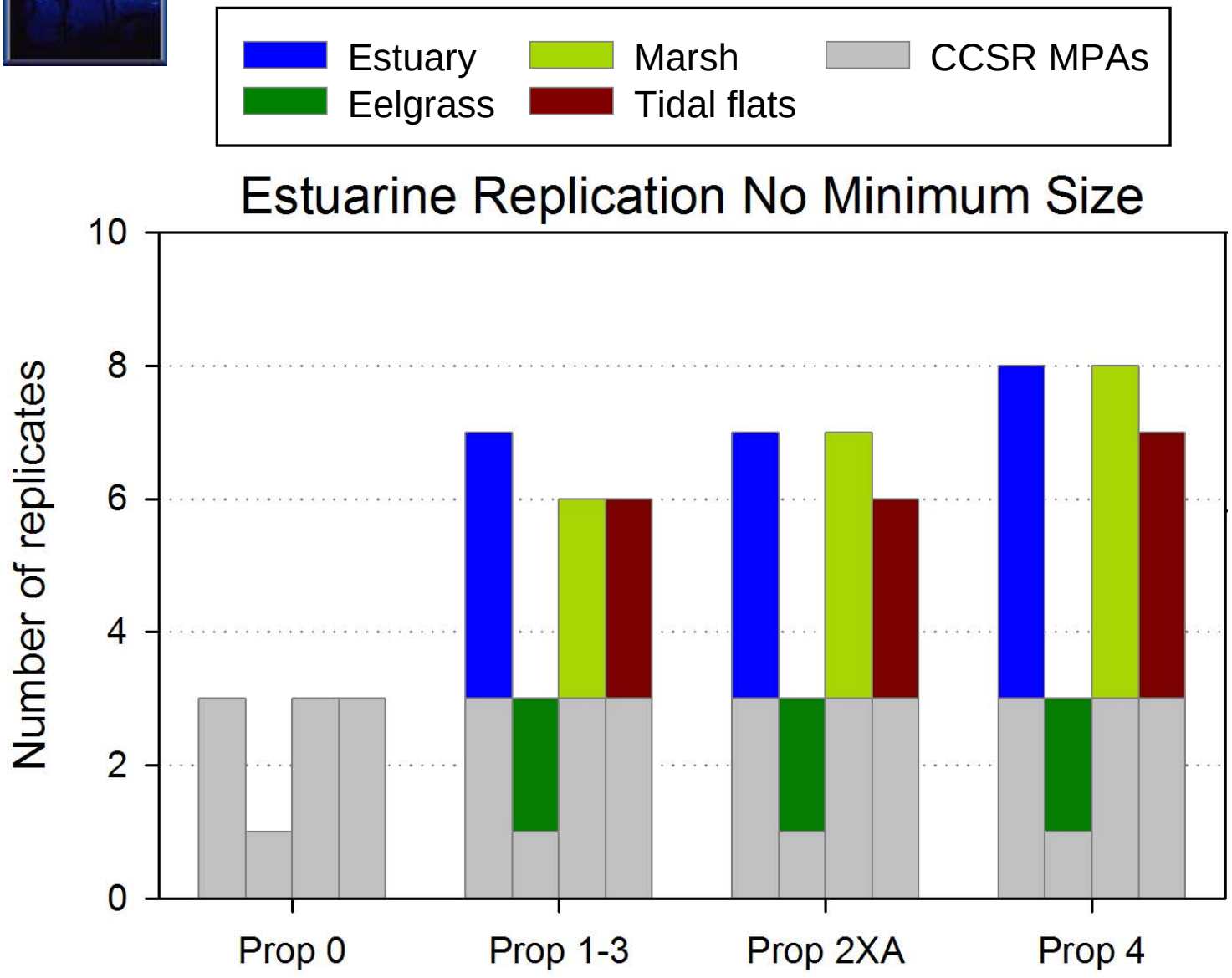


Most habitats with 2-4 new replicates

Greater replication of eelgrass than CCSR

No estuarine habitats in mod-high or high LOP

Replication: Estuarine Habitats



As before…

Estuaries too small to meet size criterion add conservation value

Additional replicates that meet habitat size criterion

Results: Habitat Replication

Summary

- No longer marked differences among proposals
- Levels of replication similar to CCSR for most habitats at highest and moderate-high levels of protection

SAT Preliminary Evaluations